Weather Modeling: Parallelized and Pedagogical

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1 Introduction

2 Weather Modeling

- Pre-computers: looking west
- Need more sources here

2.1 Computational

2.2 Parallel Aspects of Weather Modeling

- History back to 1960s on SOLOMONs
- Mesh

- Data type

3 What is Cligen?

- Model vs. Forecast
  - Short-term vs. long-term
  - Human vs. computer
- Data types
- Compare with MM5

3.1 Parallelization points

- Core statistical equations (marked with PARALLELIZE)
  - Calculation of the distance from the mean of precipitation, with units being std.dev.
  - Smoothing of monthly rainfall data
  - Computation of α, the ratio of half-hourly rainfall to total rainfall
  - Computation of χ^2, or how well the data fit to a theoretical data
  - Computation of Taylor series. I don't know what it is or what it is used for, but I could parallelize it.
- Efficiency calculations
- Speedup calculations

4 User interface

- Intuitive
- Easy to make changes
- Fast results
- Explanation?

- Ability to combine multiple stations?
- How fine-grained should the changes be?